

Radioactive Decontamination from Low Pressure Turbines and Related Stationary Equipment

Project 836

Overview:

- Leading provider to power generation, transmission and distribution products; servicing steam turbines, steam valves and electric generators
- Radioactive turbine parts need cleaning and decontamination prior to conducting maintenance

Objective:

- Maintain radiation protection to surrounding personnel
- Remove as much low-level radiation on turbines and related stationary equipment as possible



Radioactive Decontamination from Low Pressure Turbines and Related Stationary Equipment

Turbine Manufacturer:

Siemens

Substrate(s): stainless steel

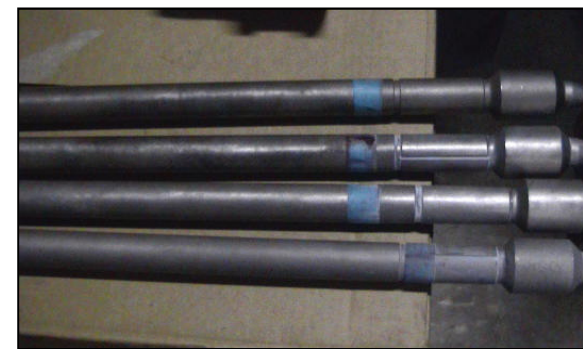
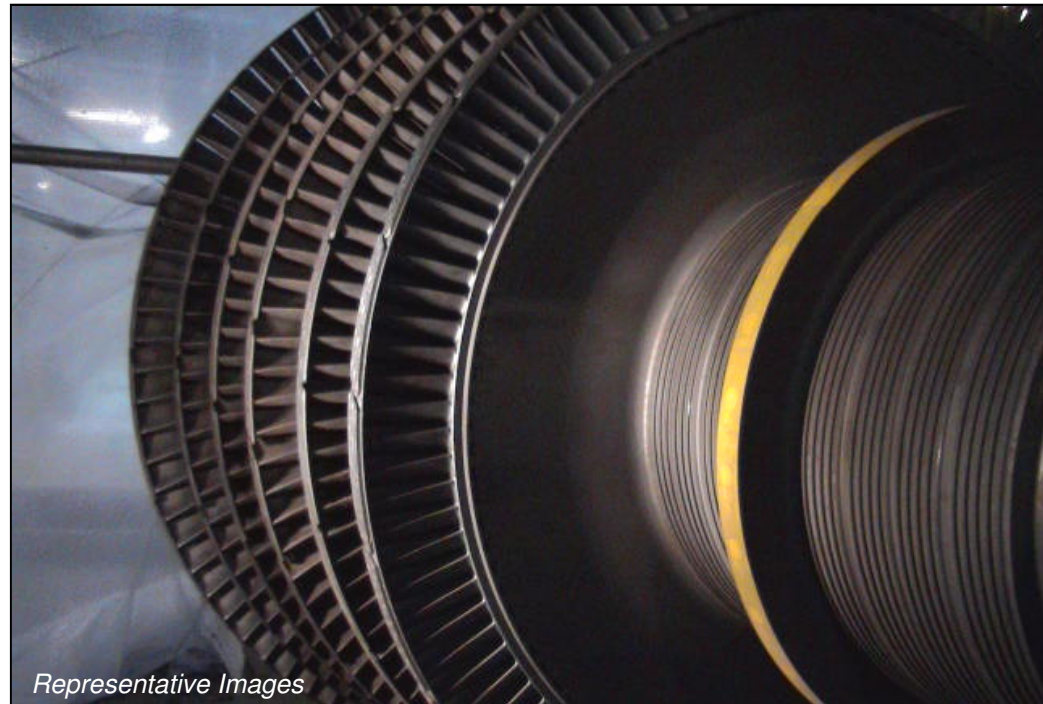
Used: White Glass Bead
Sponge Media™

Considered Using:

#60 Aluminum Oxide

Chose Sponge-Jet Because:

- Media absorbs contamination without re-depositing it
- Dust suppression at the source of generation protects operators and staff inside containment from additional exposure



©2008 Sponge-Jet Inc. All rights reserved.

Radioactive Decontamination from Low Pressure Turbines and Related Stationary Equipment

Low-Level Radioactive Decontamination “Before and After” Data – Turbine 1

Item	Fixed (Counts Per Minute)		Decon Factor	Loose (Distintegrations/Min/100cm ²)		Free Release
	Before	After		Before	After	
Rotor	300	<100	3	<1000	<1000	✓
Inner Cylinder Upper Half	300	<100	3	<1000	<1000	✓
Lower Cylinder Half	300	<100	3	<1000	<1000	✓
Gen End L/H Carrier #1	500	<100	5	<1000	<1000	✓
Gen End RS Carrier #1	400	<100	4	<1000	<1000	✓
Gen End Bracket	120	<100	1.2	<1000	<1000	✓
Gov End Bracket	120	<100	1.2	<1000	<1000	✓
TE RS Carrier #1	400	<100	4	<1000	<1000	✓
RS Gov End L/H Flow guide	400	<100	4	<1000	<1000	✓
Gov End RS Flow guide	200	<100	2	<1000	<1000	✓
Gen End RS Flow guide	200	<100	2	<1000	<1000	✓
LS Gen End Flow guide	400	<100	4	<1000	<1000	✓
Gov End Blade Carrier #1	500	<100	5	<1000	<1000	✓
Gen End Blade Carrier #2	400	<100	4	<1000	<1000	✓

©2008 Sponge-Jet Inc. All rights reserved.

Radioactive Decontamination from Low Pressure Turbines and Related Stationary Equipment

Low-Level Radioactive Decontamination “Before and After” Data – Turbine 2

Item	Fixed (Counts Per Minute)		Decon Factor	Loose (Distintegrations/Min/100cm ²)		Free Release
	Before	After		Before	After	
Rotor	800	<100	8	<1000	<1000	✓
Inner Cylinder Lower Half	800	<100	8	<1000	<1000	✓
Diffuser	200	<100	2	<1000	<1000	✓
Upper Cylinder Half	400	<100	4	<1000	<1000	✓
Gen End RS Carrier #1	500	<100	5	<1000	<1000	✓
Gov End Bracket	120	<100	1.2	<1000	<1000	✓
Gov End Bracket	120	<100	1.2	<1000	<1000	✓
TE RS Carrier #2	400	<100	4	<1000	<1000	✓
Gov End Carrier #1	1100	<100	11	<1000	<1000	✓
TE RS Flow Guide	400	<100	4	<1000	<1000	✓
Gen End L/H Flow guide	400	<100	4	<1000	<1000	✓
TE L/H Flow guide	400	<100	4	<1000	<1000	✓
#69 Cross-over Diaphragm	700	<100	7	<1000	<1000	✓
#70 Cross-over Diaphragm	500	<100	5	<1000	<1000	✓

©2008 Sponge-Jet Inc. All rights reserved.

Radioactive Decontamination from Low Pressure Turbines and Related Stationary Equipment

Outcome:

- Radiological engineer reported a “100% success rate”
- Reported all breathing air samples as “clean”
- All blasted turbines and parts were tested and then designated as “free release”
- Sponge Media did not “migrate out” of the containment structure

“The biggest reward, from my point of view, (radiation protection) is the manner in which the Sponge-Jet Blast Media absorbs the contamination without re-depositing it on the material or floor or walls of our containment structure...”

Radiological Engineer



©2008 Sponge-Jet Inc. All rights reserved.